Quality Assurance (QC)/Quality Control (QC) Processes for the National Health and Nutrition Examination Survey (NHANES)

Abstract

The National Health and Nutrition Examination Survey (NHANES), developed by the Centers for Disease Control and Prevention, is a large and comprehensive health survey utilizing leading edge technologies to produce national estimates of health measures and the nutritional status of the United States population. Continuous quality assurance (QA) and quality control (QC) are the basic components to insure NHANES delivers high quality timely data. The QA activities before data collection consist of equipment calibration and training, while the QC activities during collection consist of automated software edits, data analysis of technician performance and analytic processing. These activities are tightly coupled in a continuous two-phase process through the data collection cycle, eventually leading to data release.

Background

The fourth National Health and Nutrition Examination Survey (NHANES) took a new direction beginning in 1999. The major differences from previous surveys are that NHANES will be continuous and that it will be linked to related Federal government data collections of the general United States (U.S.) population. NHANES is designed to collect data that can be obtained by direct physical examination, clinical and laboratory tests, and related measurement procedures. This information, which cannot simply be reported by sample persons themselves or by their health care providers, is used to estimate either the prevalence of some disease or to estimate the normative distribution of the characteristic in the total population.

QA/QC is one of the most important aspects of NHANES, as the integrity of the conclusions drawn by the study is in large part determined by the quality of the data collected. Errors can be random or systematic. Systemic errors are a constant deviation from true measurements and are of more concern. The overall goal is to reduce systemic error and objectively measure the extent to which this type of error exists. Data errors and biases are caught at the earliest possible stage. Consequently, the annual QA/QC process is divided into two phases. Phase I encompasses data and instrument validation during the first half of a year. Phase II consists of data release and documentation during the latter half of a year.

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1067—5027/01/$5.00